AMENDMENT

Kindly amend the claims, as follows:

8. The patch bag according to Claim 3, wherein the patch is free of homogeneous ethylene/alpha-olefin copolymer.

REMARKS

I. The Pending Claims and the Amendments to the Claims

Claims 1 and 3-25 remain pending. Claim 2 stands canceled. Claim 1 is the only pending independent claim. The only amendment to the claims is the deletion of the word "substantially" from Claim 8. No new matter is included in the amendment.

II. The Various §112 Rejections of the Claims

In Paragraph 4 of the 5 June Office Action, Claims 1 and 3-25 are rejected under 35 USC 112, second paragraph, as indefinite. More particularly, Paragraph 4 states that in Claims 1, 4, 8, 9, and 17, it is unclear what the terms "heterogeneous" and "homogeneous" mean in terms of the actual structure of the ethylene/alpha-olefin copolymers, especially in the structure of VLDPE and LLDPE.

In response, Applicants direct attention to the their specification, more particularly to that portion of their specification beginning on Page 8 line 15 and extending through Page 11 line 16, which extensively describes the structure of homogeneous copolymers, and states that homogeneous polymers are structurally different from heterogeneous polymers. See Page 8 line 23 through Page 9 line 3. In the early 1990's, homogeneous ethylene/alpha-olefin copolymers produced by metallocene

catalysts began to be commercialized. Homogeneous ethylene/alpha-olefin copolymers differ from heterogeneous ethylene/alpha-olefin copolymers in that homogeneous ethylene/alpha-olefin copolymers have a narrower molecular weight distribution, which is a way of saying that the polymer chains are of more uniform length than heterogeneous ethylene/alpha-olefin copolymers. Homogeneous copolymers are also of more uniform comonomer distribution within the chains. In contrast to "heterogeneous" copolymers, homogeneous copolymers contain no fraction of polyethylene homopolymer. The reason for this is that the metallocene catalyst is soluble and therefore is equally available to both the ethylene monomer and the C_{3-10} alpha-olefin comonomer. As a result, in a homogeneous copolymer the polymer chains are not only about the same length, but are also similar in containing about the same amount and distribution of the comonomer in each polymer chain.

Heterogeneous copolymers have a broader molecular weight distribution (Mw/Mn), i.e., have lengths which vary more than for homogeneous copolymers, and have less uniform distribution of the comonomer throughout the polymer chains. Heterogeneous copolymers are produced by a Ziegler Natta catalyst which is present on a solid support. The solid support has a plurality of catalytic sites thereon. As a result, while there are some catalytic sites having almost equal availability to the relatively small ethylene monomer and the relatively larger C_{3-10} alpha-olefin comonomer, there are some catalytic sites which have significant differences in availability between ethylene and the C_{3-10} comonomer. Because ethylene is much more available to some sites than others, the resulting heterogeneous polymer chains vary greatly in the amount of comonomer present. In fact, unlike homogeneous copolymers, heterogeneous copolymers contain a fraction which is entirely ethylene homopolymer. Of course, this fraction results in a characteristic differential scanning calorimetry

curve (DSC curve), because the ethylene homopolymer has a higher melting point than the copolymer has, producing a distinctive peak on the DSC curve. At the time of filing of Applicants' application, those of skill in the art were well aware of both heterogeneous ethylene/alpha-olefin copolymers and homogeneous ethylene/alpha-olefin copolymers, and knew how to distinguish one type of polymer from another, and knew the structural differences between these kinds of polymers. As a result, Applicants contend that this rejection should be withdrawn, as the claims are not indefinite for the recitation of heterogeneous copolymers and homogeneous copolymers, as they are both well known to those of ordinary skill in the art of ethylene copolymers.

In Paragraph 5 of the 5 June Office Action, Claims 4-5, 11, and 24 are rejected as indefinite. More particularly, Paragraph 5 states that Applicants should state for the record what the difference is between LLDPE and VLDPE. The Office Action goes on to state that LLDPE and VLDPE have a similar linear structure and lack of long chain branching and that they are produced by similar polymerization mechanisms.

In response, Applicants first direct attention to their specification, more particularly Page 12 lines 15-19, as follows:

> As used herein, the phrase "very low density polyethylene" refers to heterogeneous ethylene/alpha-olefin copolymers having a density of 0.915 g/cc and below, preferably from about 0.88 to 0.915 g/cc. As used herein, the phrase "linear low density polyethylene" refers to, and is inclusive of, both heterogeneous and homogeneous ethylene/alpha-olefin copolymers having a density of at least 0.915 g/cc, preferably from 0.916 to 0.94 g/cc.

Applicants contend that this paragraph clearly states that VLDPE is a heterogeneous ethylene/alpha-olefin copolymer and has a density of up to 0.915 g/cc, and that while LLDPE has a density of at least

0.915 g/cc, it is inclusive of both heterogeneous and homogeneous copolymers. Applicants contend that this description of VLDPE and LLDPE is not indefinite, and accordingly that this ground of rejection should be withdrawn.

In Paragraph 6 of the 5 June Office Action, Claim 7 is rejected as indefinite. More particularly, Paragraph 6 states that it is unclear what the Standard Rib Drop Test is, and that Applicants should state for the record what this test is. In response, Applicants direct attention to their specification, more particularly Page 40 line 5 through Page 41 line 21, as follows:

* * *

The Standard Rib Drop Test

The Standard Rib Drop Test was carried out as follows. Two pieces of split beef back-ribs (total package weight of from 4 to 5 pounds) were placed in a 7 inch wide, 24 inch long end-seal patch bag termed a "wide-patch bag" due to the fact that the patches extend past the side edges of the bag. The bag film was as set forth in Table I, above, and had a thickness of 2.4 mils. Only the patch film varied with the test being conducted. The patch bag had a patch adhered to each lay-flat side thereof, with each of the patches having a length of 19 inches and a width of 8½ inches. The lower edge of the patches was positioned approximately 5/16 inch above the end-seal of the bag. The patches extended past the bag side edges, with the overhanging portions of the patches being adhered to one another. The uppermost 4 11/16 inches of the bag was not covered by a patch on either lay-flat side thereof. The patch bag, having the two split beef back ribs therein, was placed in a Cryovac® Model 8600B-18 rotary chamber vacuum packaging machine, which evacuated the air from the bag and sealed the bag shut, and trimmed off the excess bag length. The resulting package was then run through a Cryovac® Model 6570E hot water shrink tunnel in which the water temperature was 200°F. The bag shrunk tight to the product as a result of passing through the shrink tunnel.

The test data was generated as follows. Six different patch formulations were tested to determine puncture resistance in actual use. The patch bags for each of the formulations were tested with six different sets of split beef back ribs, with 16 ribs per set. For the first rib set, the first patch bag formulation was tested by packaging the ribs in pairs in each of eight patch bags of a first formulation. The packages were evacuated, sealed, and excess length removed, as described above. Then, each evacuated package was placed on edge, i.e., rib ends down (the most vulnerable position), in a 400 mm wide by 600 mm long by 235 mm high cardboard box made by Weyerhauser, of Amarillo, Texas, the box being of a type known as XB3-07046. The box, having the eight packages therein, each with rib ends down, was dropped one time from a height of 3 feet, using an Accu Drop® 130 drop tester, produced by M.T. Lab, Lab Division, of Onondaga Street, Skaneateles, New York, 13152. The packages were then removed from the box and inflated with air while submerged, to determine if the patch was punctured. The total number of packages with punctured patches (i.e., leakers) were recorded for the set of eight packages tested.

The ribs in the bags tested were then removed from the tested bags and loaded into a second set of eight patch bags, each being of the second patch formulation, which of course differed from the first patch formulation. The test was then repeated in the same manner in which the first set of patch bags was tested, i.e., as described above; again for a third set of patch bags, and so on, until all 6 different sets of patch bags had been tested with the same set of split beef back ribs. A total of 48 bags were dropped to generate this data set.

However, since the ribs, at least in theory, could have been dulled by repetitive drops, repetitive testing was structured to allow each set of patch bags to be the first set tested with a fresh set of ribs, the second set tested, and so on. In order to carry this out, a second data set was generated in a manner identical to the generation of the first data set, except that the second patch bag formulation was the first tested, etc, with the first formulation being the last tested in the set, and the order of testing otherwise being the same. Then yet a third data set was generated with the third patch bag formulation being the first tested, etc, up through six different data sets, with each patch bag formulation being the first tested with a particular set of ribs, the second tested, etc. In this manner, each set of patch bags was subjected to a total puncture abuse which was, in theory, equivalent to the other sets of patch bags tested. Then, after the six data sets were generated as a first "data grid," the entire data grid was repeated with the same ribs, in the same order as the first data grid. In total, 576 data points were generated, with each patch bag formulation being dropped to produce a total of 96 data points, including data from both grids.

* * *

Based on the above portion of the specification, Applicants contend that one of ordinary skill in the art could readily test a patch bag to determine its failure rate using the Standard Rib Drop Test set forth in Applicants' specification. Accordingly, Applicants request that this rejection be withdrawn.

In Paragraph 7 of the 5 June Office Action, Claim 8 is rejected as indefinite. More particularly, Paragraph 7 states that Claim 8 is unclear in reciting the phrase "substantially free of homogeneous ethylene/alpha-olefin copolymer", since the resin is either present or absent. In response, Applicants note that Claim 7 is hereinabove amended by the deletion of the word "substantially". Accordingly, Applicants request that this rejection be withdrawn.

In Paragraph 8 of the 5 June Office Action, Claim 13 is rejected as indefinite. More particularly, Paragraph 8 states that in Claim 13 it is unclear what the difference is between an outer

abuse layer and a sealant layer, if the resin can function as both depending upon where it is placed in the multilayer film.

In response, Applicants contend that Claim 13 is not indefinite. Among other features, Claim 13 recites the film from which the *bag* is made as having an *outside* layer and an *inside* layer, with the outside layer being an abuse layer and the inside layer being a seal layer. Note that Applicants' specification, more particularly Page 13 lines 5-11 thereof, discloses an inside layer as the film layer closest to the product, and that an outside layer is the film layer furthest from the product. Thus, the inside sealant layer is the film layer forming the inside of the multilayer bag film, and the outside abuse layer is the layer forming the outside layer of the multilayer bag film. As the Office Action refers to the recitation in Claim 13 of outside and inside layers and relates these layers to the polymers recited in Claim 1, the Office Action appears to erroneously consider the Claim 1 recitation of polymers as being present in the second heat-shrinkable film (i.e., the film from which the *bag* is made), which is not what Claim 1 recites. The composition is present in the *first* heat-shrinkable film, from which he *patch* is made. As a result, the statements in the Office Action concerning the location of the recited polymers in both the inside layer and the outside layer do not correspond with the polymer recitations of Claim 1. Accordingly, Applicants request that this rejection be withdrawn, as the Office Action does not set forth any basis for asserting that Claim 13 is indefinite.

II. The Rejection of Claims 1, 3-11, and 14-25 as Anticipated by FERGUSON '403

In Paragraph 10 of the 5 June Office Action, Claims 1, 3-11, and 14-25 are rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,755,403, to Ferguson ("FERGUSON '403"). The Office Action states that FERGUSON '403 teaches a biaxially shrinkable bag and biaxially

shrinkable patch containing LLDPE and EVA, and that FERGUSON '403 teaches that LLDPE has a density of from 0.900-0.935 g/cc, which encompasses Applicants' components A and B as defined in Applicants' specification, and appears to include VLDPE as referred to in Applicants' specification.

In response, Applicants contend that Claims 1, 3-11 and 14-25 are not anticipated by FERGUSON '403. Applicants' claims all require the presence of a patch film comprising two *different* polymers: a first component and a second component. The first component has a density greater than about 0.915 g/cc and the second component has a density of less than about 0.915 g/cc. In other words, Applicants are claiming a heat-shrinkable bag having a heat-shrinkable patch adhered thereto, with the patch film containing at least two different ethylene/alpha-olefin copolymers. The two recited polymers must differ. Although they must both be ethylene/alpha-olefin copolymers, they must differ at least with respect to density. In order to anticipate, it must be shown that FERGUSON '403 discloses a patch film containing two *different* ethylene/alpha-olefin copolymers. The Office Action does not state that FERGUSON '403 discloses two different ethylene/alpha-olefin copolymers in accordance with Applicants' Claim 1. Rather, the Office Action states that because FERGUSON '403 discloses a density range for LLDPE of 0.900-0.935, Applicants' claims are anticipated by the disclosure of FERGUSON '403. However, the Office Action does not show how Applicants' claim reciting two *different* polymers reads on a disclosure of a patch containing LLDPE having a density of from 0.900 g/cc to 0.935 g/cc. Applicants maintain that FERGUSON '403 does not teach or suggest the use of two different ethylene/alpha-olefin copolymers in the patch film, with one polymer having a density of greater than about 0.915 g/cc and the other polymer having a density of less than about 0.915 g/cc. Accordingly, the Office Action fails to make a prima facie showing that FERGUSON '403 anticipates any one or more of Applicants' Claims 1, 3-11, and 14-25.

III. The Rejection of Claims 1, 3-8, 10-11, and 13-25 as Obvious over FERGUSON '403 in view of FERGUSON et al '856

In Paragraph 11 of the 5 June Office Action, Claims 1, 3-8, 10-11, and 13-25 are rejected under 35 USC 103(a) as unpatentable over FERGUSON '403 in view of U.S. Patent No. 4,640,856, to FERGUSON et al ("FERGUSON et al '856"). The Office Action relies upon FERGUSON '403 as in the §102 rejection, but states that FERGUSON '403 "...fails to teach the multilayered film comprises an outside abuse layer, inner O_2 barrier layer and inside sealant layer." The Office Action goes on to state that FERGUSON et al '856 teaches bags having improved shrink, tear, barrier, and puncture resistance, and that FERGUSON et al '856 teaches that these bags contain a gas barrier layer, an inside sealant layer of VLDPE, and a layer comprising a blend of VLDPE and LLDPE in the outside abuse layer. The Office Action further states that FERGUSON et al '856 teaches that the bags have an impact strength of 13 to 28 cm.kg, which demonstrates the puncture resistance of the films, and that FERGUSON et al '856 teaches that VLDPE provides unexpected results not only regarding improved O_2 barrier properties, but also improved shrink below the melting point of the polymer, and below the boiling point of water. As a result of these teachings, the Office Action concludes that it would have been obvious to one of ordinary skill in the art to have used the teachings of FERGUSON et al '856 in the invention of FERGUSON '403 to obtain a patch bag with improved oxygen barrier and shrink properties.

In response, Applicants contend that Claims 1, 3-8, 10-11, and 13-25 are patentable over FERGUSON '403 in view of FERGUSON et al '856. At the outset, Applicants note that the statement in the Office Action that FERGUSON '403 "...fails to teach the multilayered film

comprises an outside abuse layer, inner O_2 barrier layer and inside sealant layer" is not entirely accurate. Applicants note that Column 4 lines 13-20 of FERGUSON '403 incorporates by reference U.S. Patent No. 3,741,253, to Brax et al. The Brax et al '253 patent discloses a heat shrinkable bag made from a multilayer film having outer layers made from ethylene/vinyl acetate copolymer, and an inner O_2-barrier layer made from vinylidene chloride vinyl chloride copolymer. While one of the outer EVA layers serves as a heat seal layer, the other EVA layer contributes to abuse resistance of the film. Applicants bring up these points simply to set the record straight, and contend that their claims remain patentable over FERGUSON '403 alone or in view of FERGUSON et al '856.

Turning specifically to the combination of FERGUSON '403 in view of FERGUSON et al '856, Applicants first note that the disclosure in FERGUSON et al '856 is to use VLDPE in a multilayer heat-shrinkable film which is thereafter converted into a *bag*, without any disclosure directed to the use of VLDPE in a patch for a bag. FERGUSON et al '856 is particularly directed to a multilayer film having at least one layer consisting essentially of VLDPE. Although Applicants acknowledge that FERGUSON et al '856 also discloses a blend of VLDPE and LLDPE in a film in order to "achieve desired properties" (FERGUSON et al '856, Col. 9 lines 49-51), this disclosure cannot be considered in isolation, i.e., it is a disclosure of a layer containing an LLDPE-VLDPE blend *in addition to* another film layer consisting essentially of VLDPE. Thus, to use FERGUSON et al '856 to modify the LLDPE layer of FERGUSON '403 into a layer comprising a blend of LLDPE and VLDPE, as proposed in the Office Action, would result in a patch film which is not in accordance with FERGUSON et al '856, because it would not contain at least one layer consisting essentially of VLDPE. In other words, this modification uses the secondary reference in a manner

inconsistent with the teachings of the secondary reference, which is not permissible in an obviousness rejection. As a result, the Office Action fails to establish a prima facie case of obviousness.

Moreover, to substitute VLDPE for some of the LLDPE in the patch film of FERGUSON '403 would have been thought to be likely to diminish the "surprising strength and toughness" of the LLDPE patch of FERGUSON '403, as the amount of LLDPE would be reduced, assuming the layer thickness remains the same. See Column 3 lines 59-62 of FERGUSON '403. In other words, FERGUSON '403 contains a teaching of surprising advantage in the use of LLDPE, which could likely be diminished by the substitution of VLDPE for some of the LLDPE. Applicants contend that for this reason, one of ordinary skill in the art would not have been motivated to make the substitution of VLDPE for LLDPE.

Moreover, the overall thrust of FERGUSON et al '856 is to maximize the amount of VLDPE in a heat-shrinkable bag, and the overall thrust of FERGUSON '403 is to maximize the amount of LLDPE in a heat shrinkable patch. Applicants have discovered the unexpected: that in a heat-shrinkable patch, a blend of VLDPE and LLDPE can provide better results than either VLDPE alone or LLDPE alone. There is no teaching in either FERGUSON '403 or FERGUSON et al '856 that this is the case. Applicants again point to the unexpected results described on Page 10 of the Amendment under 37 CFR 1.111, filed October 15, 2001. Applicants contend that this is further evidence of the patentability of their invention, and Applicants note that this evidence was of record in advance of any rejection of Applicants' claims.

IV. The Rejection of Claims 9 and 12 as Obvious over FERGUSON '403 in view of FERGUSON et al '856, further in view of WILHOIT

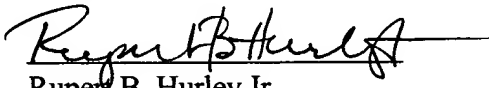
In Paragraph 12 of the 5 June Office Action, Claims 9 and 12 are rejected under 35 USC 103(a) as unpatentable over FERGUSON '403 in view FERGUSON et al '856, further in view of U.S. Patent No. 5,283,128, to Wilhoit ("WILHOIT"). The Office Action relies upon FERGUSON '403 and FERGUSON et al '856 as set forth above, and further states that WILHOIT discloses a heat-shrinkable film comprising VLDPE, LLDPE, EVA, and a homogeneous ethylene/alpha-olefin plastomer copolymer having a density below 0.90 g/cc, and that the homogeneous copolymer is present in an amount of 10-20 weight percent, based on the total weight of the blend, and that the film can be a monolayer film.. The Office Action concludes that it would have been obvious to use the blend taught by WILHOIT in the invention of FERGUSON '403 in order to provide the film with electrometric properties provided by the homogeneous copolymer.

In response, Applicants contend that Claims 9 and 12 are patentable over FERGUSON '403 in view of FERGUSON et al '856 further in view of WILHOIT, for at least the same reasons that Claims 9 and 12 are patentable over FERGUSON '403 in view of FERGUSON et al '856, i.e., as set forth under heading "III" above. As Claims 9 and 12 each ultimately depend upon Claim 1, the remarks regarding Claim 1 apply with equal force to Claims 9 and 12. Moreover, there is no teaching or suggestion in either FERGUSON '403 or FERGUSON et al '856 that the patch should be provided with elastomeric properties. Although it appears that WILHOIT teaches that the use of the elastomer lowers the temperature at which the film will shrink, which could possibly be a desirable property for a patch, depending upon the shrink qualities of the bag film, it also appears that the desired patch properties disclosed in FERGUSON '403 could have been diminished by utilizing a blend of LLDPE

and VLDPE with the patch further comprising homogeneous ethylene/alpha-olefin copolymer. The performance of such a heat-shrinkable patch could only have been determined by making such a patch and testing it for its performance versus the patch of FERGUSON '403. For all of the above reasons, Applicants contend that Claims 9 and 12 are patentable over FERGUSON '403 in view of FERGUSON et al '856 further in view of WILHOIT.

Applicants respectfully request reconsideration of the patentability of the claims, in view of the amendment and remarks set forth above.

Respectfully Submitted,



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APPENDIX

The amendments to the claims are set forth below.

8. (Once Amended) The patch bag according to Claim 3, wherein the patch is [substantially] free of homogeneous ethylene/alpha-olefin copolymer.